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Records and Morphology of *Lomanotus stauberi* Clark & Goetzfried, 1976, from the Panamic Pacific

by

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Abstract. Specimens of *Lomanotus stauberi* Clark & Goetzfried, 1976, were collected from the Gulf of California and Pacific coast of Baja California. Morphologically they closely resemble the type material and other specimens collected from the Atlantic coast of Florida. The material collected in this study constitutes the first record of the genus *Lomanotus* from the Pacific Ocean.

INTRODUCTION

Lomanotus stauberi was described from the Atlantic coast of Florida (Clark & Goetzfried, 1976). Since then no additional records of the species have been published. Specimens from the Gulf of California and the Pacific coast of Baja California (Figure 1) represent a significant extension of known range of *L. stauberi* and the first record of the genus from the Pacific Ocean. In this paper we describe the morphology of these specimens and compare them with type material and other specimens collected from the Atlantic coast of Florida.

DESCRIPTION

Material: Paratypes—National Museum of Natural History, Washington, D.C., USNM 710760, 6 specimens, Sebastian Inlet, Florida (27°51′33″N, 80°26′45″W), 1 m depth, 26 July 1975, Kerry Clark.

California Academy of Sciences, San Francisco, CASIZ 050217, 3 specimens, Boca Ratón Inlet, Florida, 1 m depth, 1 June 1975, Terrence M. Gosliner.

California Academy of Sciences, San Francisco, CASIZ 050218, 3 specimens, 10 km S of Loreto, opposite road to El Rincón, Gulf of California, Baja California Sur, Mexico (26°55′N, 111°20′W), 3 m depth, 14 January 1984, Terrence M. Gosliner.

California Academy of Sciences, San Francisco, CASIZ 050219, 5 specimens, S end of Isla Magdalena, 200 m inside Punta Entrada, Magdalena Bay, Baja California Sur, Mexico (24°34′N, 112°03′W), 3–4 m depth, 16 January 1984, Hans Bertsch.

External morphology: The living animals (Figure 2) range in length from 11 to 14 mm. The ground color is translucent white. The notum, head, and sides of the body are brown. Irregular darker brown lines extend the entire length of the notum. A network of opaque white lines covers much of the oral tentacles, rhinophores, branchial lobes, and notum. An opaque white spot is present at the apex of each branchial lobe.

The oral veil is semicircular in shape (Figure 4). The anterior limit of the head is often upturned when the animals are actively crawling. The anterior foot corners are short and angular. Extending from the dorsolateral portion of the head are a pair of simple, acutely pointed oral tentacles. The rhinophore sheaths possess 5–9 shallow lobes. The perfoliate rhinophores are composed of 9–12 lamellae. The notum is expanded into 22–25 branchial lobes per side. Each lobe terminates at a short digitiform

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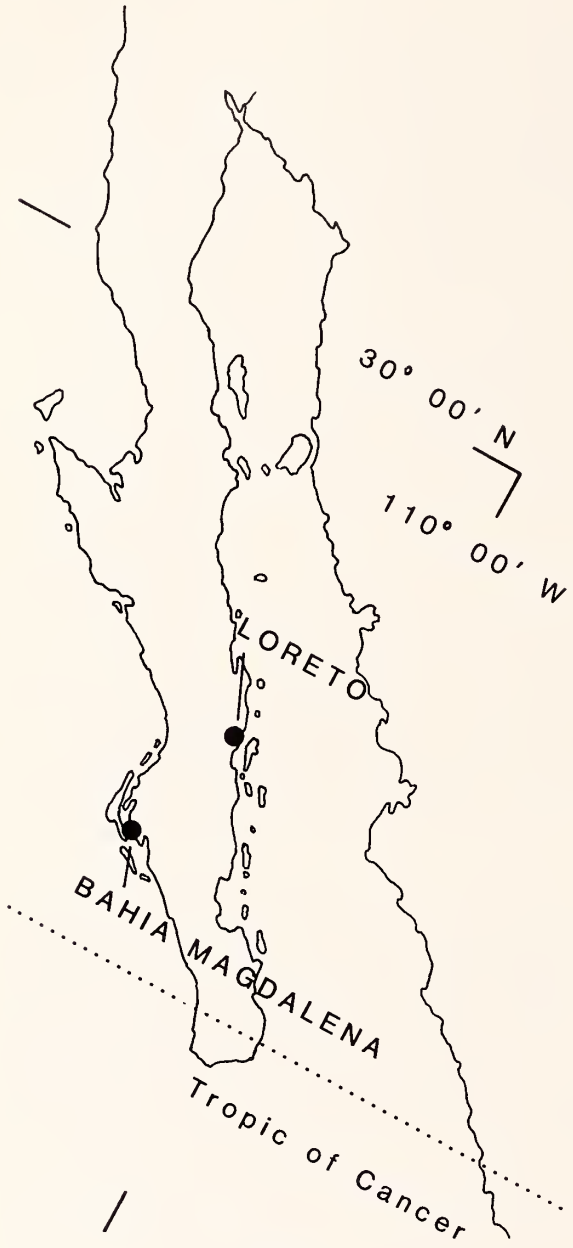


Figure 1

Map of Baja California, indicating collecting localities.

process. The genital aperture is situated ventral to the fourth and fifth branchial lobes, while the anus is located ventral to the tenth to twelfth branchial lobes.

Internal morphology: The jaws (Figure 5) possess an elongate masticatory margin that bears several rows of platelets, each of which bears 7–10 denticles (Figure 6). The radular formula is 20 × 7-14.0.7-14 in the single specimen examined in this study (Figures 7–11). There are 6–15 denticles on the outer side and 6–10 denticles on the inner side of the radular teeth. The teeth are widest near the rachis of the radula and become progressively narrower near the outer margins.

The reproductive system (Figure 13) contains a narrow preampullary duct, which expands into a wider, saccate ampulla. The ampulla narrows into the postampullary duct and divides into the oviduct and vas deferens. The oviduct expands into a bilobed receptaculum seminis and narrows again where it joins the albumen, membrane and mucous glands of the female gland mass. The female glands terminate at the female aperture. The vas deferens is prostatic throughout its length and terminates at a muscular, conical penis, which is unarmed.

Egg mass: The white egg mass (Figure 3) consists of a convoluted ribbon (about 14 mm long and 2 mm across the coils) which is oriented along the longitudinal axis of the hydroid stem. Within the mass there is a single egg per capsule.

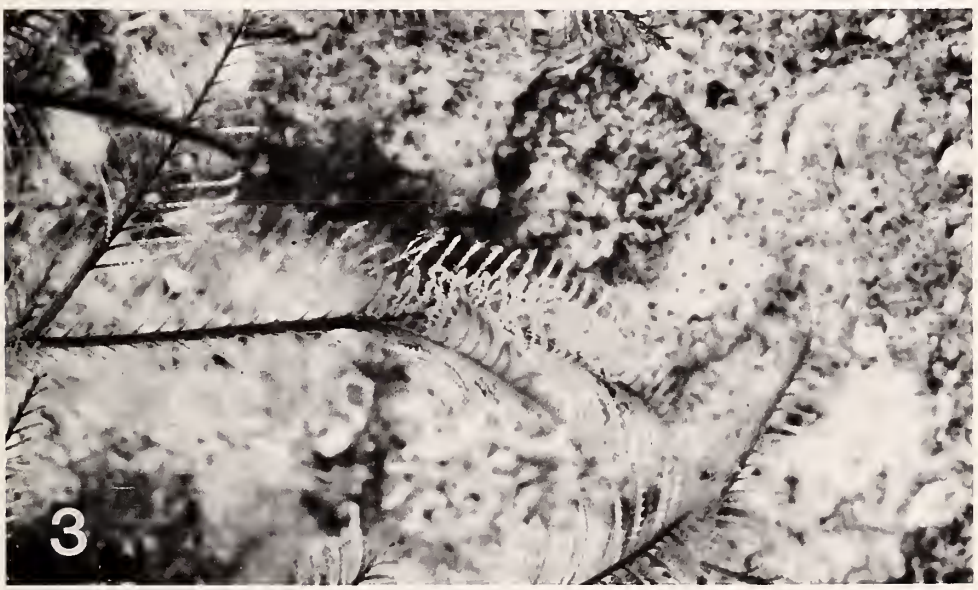
Natural history: Specimens were found on colonies of the stinging plumularid hydroid *Lytocarpus philippinus* (Kirchenpauer, 1872) in 1–4 m of water. The animals and egg masses are remarkably cryptic on the hydroid colonies. At both localities where *Lomanotus stauberi* was collected in this study, *Lytocarpus* forms dense aggregations on the tops and sides of boulders where there is slight surge.

DISCUSSION

Material collected from the Gulf of California and the Pacific coast of Mexico was compared with the original description of *Lomanotus stauberi* Clark & Goetzfried, 1976. Paratype specimens and specimens collected by one of us (TMG) from the Atlantic coast of Florida were also compared with the present material. In virtually all aspects, the morphology of the present material agrees with that known from the Atlantic coast of Florida and there is no doubt that they are conspecific.

The radula of the Pacific material contains more teeth per half row (up to 14) than that described by Clark & Goetzfried (1976) where there are 7–9 teeth per half row. However, the paratype specimen examined in this study (Figure 12) contained up to 11 teeth per half row. Clark & Goetzfried also noted that specimens from Florida had as many as 31 branchial lobes per side, whereas in the present material there is a maximum of 25 per side. This is likely a function of the somewhat smaller body size of the Mexican material. These slight differences are considered minor and within the normal range of variation.

Clark & Goetzfried (1976) mentioned that the penis of *Lomanotus stauberi* is conical and unarmed, but the remainder of the reproductive morphology was not described. The configuration of the reproductive organs described here is based upon the examination of three specimens, two from Isla Magdalena and one paratype from Sebastian Inlet, Florida. No morphological variability was



Explanation of Figures 2 and 3

Figure 2. *Lomanotus stauberi* Clark & Goetzfried, 1976. Living animal.

Figure 3. *Lomanotus stauberi* Clark & Goetzfried, 1976. Egg mass.

detected. The reproductive morphology of two other species of *Lomanotus* has been described. In *L. stauberi* the receptaculum seminis is bilobed while in *L. phiops* Marcus, 1957, it is undivided and in *L. genei* Verany, 1844, it is absent (see MARCUS, 1957; SCHMEKEL, 1970).

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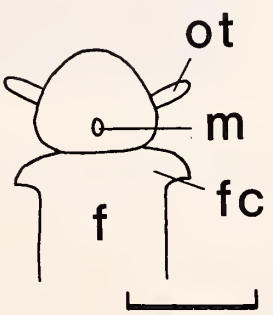
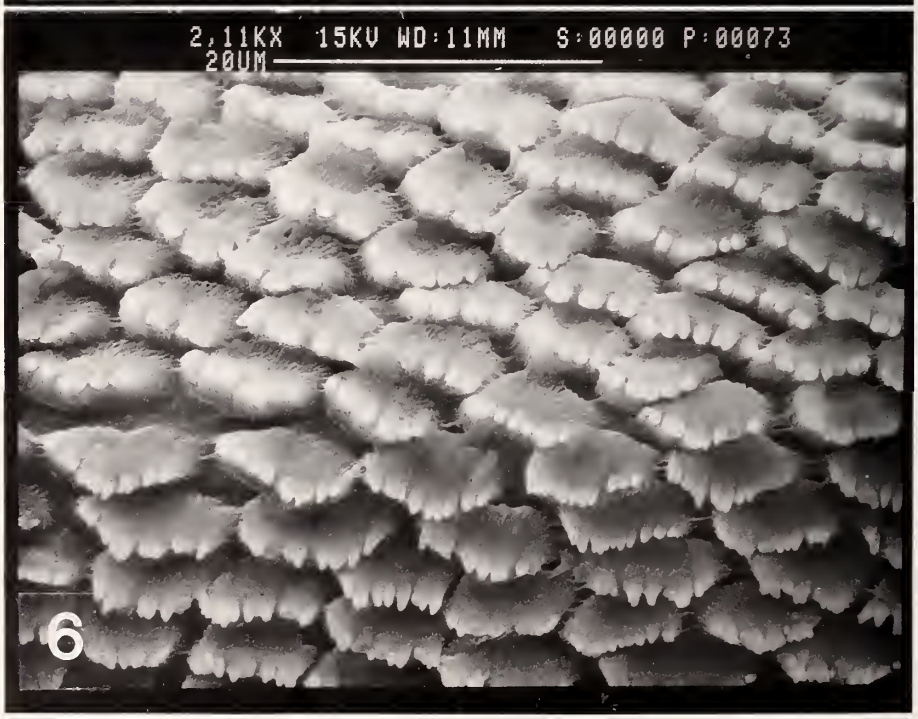
Figure 4



Lomanotus stauberi Clark & Goetzfried, 1976. Ventral view of head: f, foot; fc, foot corner; m, mouth; ot, oral tentacle. Scale = 3.0 mm.



Explanation of Figures 5 and 6

Figure 5. *Lomanotus stauberi* Clark & Goetzfried, 1976. Jaw.

Figure 6. *Lomanotus stauberi* Clark & Goetzfried, 1976. Masticatory elements.

Explanation of Figures 7 and 8

Figure 7. *Lomanotus stauberi* Clark & Goetzfried, 1976. Entire radula of specimen from Loreto.

Figure 8. *Lomanotus stauberi* Clark & Goetzfried, 1976. Teeth 1–3.

Explanation of Figures 9 and 10

Figure 9. *Lomanotus stauberi* Clark & Goetzfried, 1976. Teeth 4–7.

Figure 10. *Lomanotus stauberi* Clark & Goetzfried, 1976. Teeth 7–12.

Explanation of Figures 11 and 12

Figure 11. *Lomanotus stauberi* Clark & Goetzfried, 1976. Teeth 10–14.

Figure 12. *Lomanotus stauberi* Clark & Goetzfried, 1976. Half row of radular teeth of paratype specimen.

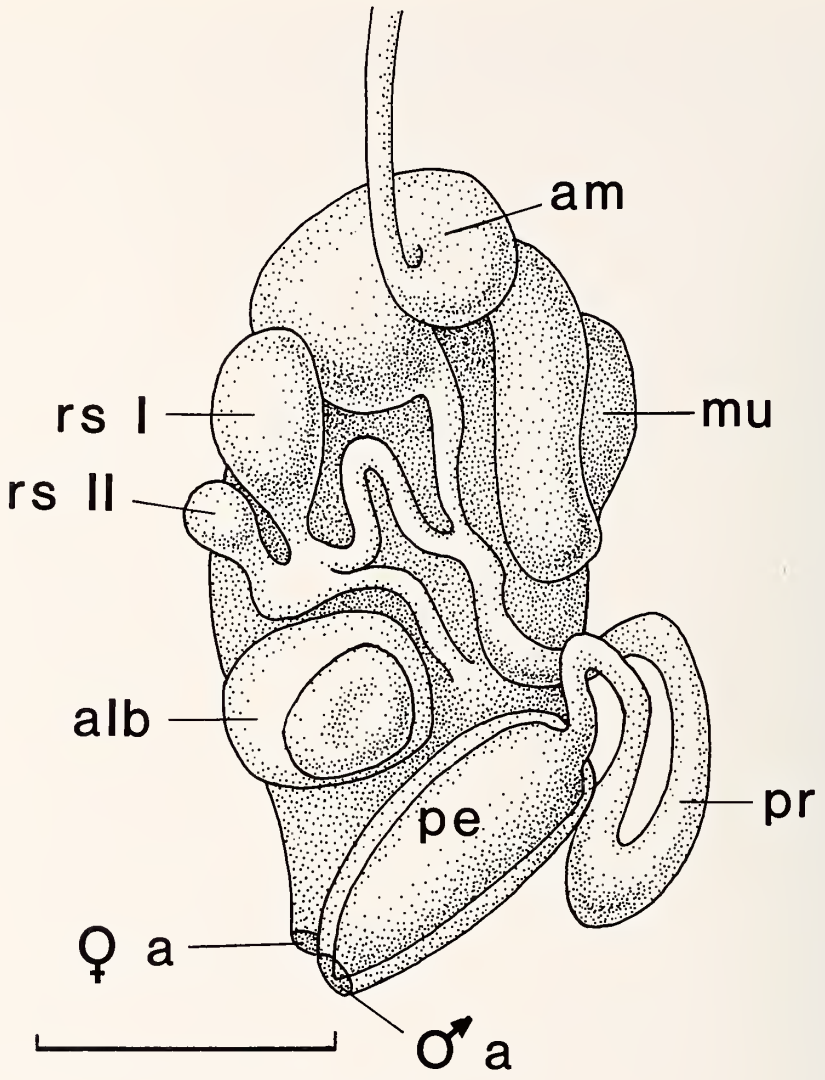


Figure 13

Lomanotus stauberi Clark & Goetzfried, 1976. Reproductive system: alb, albumen gland; am, ampulla; mu, mucous gland; pe, penis; pr, prostate; rs I, receptaculum seminis I; rs II, receptaculum seminis II; ♀a, female aperture; ♂a, male aperture. Scale = 1.0 mm.

It is difficult to make definitive judgments regarding the systematics of *Lomanotus,* as the majority of species are incompletely described. Clark & Goetzfried (1976) provided a detailed review of the known morphological features of members of the genus. From their data it is clear that *L. stauberi* is most similar to *L. phiops* Marcus, 1957, and *L. vermiformis* Eliot, 1908. Clark & Goetzfried noted important radular differences between *L. stauberi* and *L. phiops. Lomanotus phiops* also differs from *L. stauberi* by its undulate rather than straight notal border and by its undivided rather than bilobed receptaculum seminis. It is difficult to compare *L. stauberi* with *L. vermiformis.* Eliot (1908) described only the external morphology and radula of *L. vermiformis* and provided no figures of his specimens. The apparent similarity of the two taxa warrants further morphological study, particularly as the prey hydroid of *L. stauberi, Lytocarpus philippinus* is circumtropical in its distribution (Nutting, 1900) and is known from the Red Sea.

Lomanotus stauberi is certainly more widespread than originally indicated and has a broad distribution within the Panamic Province, having been found in the Gulf of California and on the Pacific coast of Baja California. The fact that it has not previously been encountered in the region can be attributed directly to its specialized habitat and extremely cryptic appearance when on its prey.

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